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Department of Energy

Washington, DC 20585

February 23, 1994

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
Suite 700
625 Indiana Avenue, N.W.
Washington, D.C. 20004

Dear Chairman Conway:

On January 21, 1994, the Secretary of Energy forwarded the Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 93-5 regarding the waste characterization program for high-level nuclear waste storage tanks at the Hanford Site.

Incorporation of final Board Staff comments into the Implementation Plan could not be completed prior to its release. The Implementation Plan is now revised to incorporate these comments. Errata pages and corrected text are enclosed.

Please note that Commitment 4.1 was changed from January 1994 to February 1994. This commitment required the Department to issue a broad-based Environmental Assessment by January 1994. The commitment date changed because one of our stakeholders requested additional time to submit comments. This change will not impact the Department's ability to meet other commitments in the 93-5 Implementation Plan.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas P. Grumbly", is written over the word "Sincerely,".

Thomas P. Grumbly
Assistant Secretary for Environmental
Restoration and Waste Management

Enclosure

ENCLOSURE

Listed below are the pages to be removed and replaced from the 93-5 Implementation Plan that was sent to the Defense Nuclear Facilities Safety Board (DNFSB) on January 21, 1994. Changes are cross-referenced to comments the DNFSB staff sent to DOE/EM-36 on January 24, 1994.

PAGE	COMMENT	NATURE OF CHANGE
iii	1.d	Appendix D removed to eliminate inconsistency regarding sampling capacity. Appendix D showed only 2-shift operation of sampling trucks. DOE/WHC has committed to 3-shift/7-day per week operations, if necessary, to meet the 2- and 3-year commitments. Former Appendix E is now Appendix D.
v	1.a	Qualifying phrase in (b) removed to eliminate perceived waffling on commitment to sample all tanks as required by the technical basis.
vi, vii	1.b	Changed to reflect a clear commitment to the 2-year goal for sampling all watch list tanks.
viii	2.a	Changed to match Commitment 5.13 (LANL not on line until February 1995).
7	none	Changed Commitment 4.1 from January 1994 to February 1994 due to late delivery of stakeholder comments.
9	none	Changed due date from June 1993 to June 1994. Typographical correction.
14	3.a	Commitment 1.3 strengthened by adding a deliverable of a training/qualification plan for RL characterization staff.
16	3.b	Commitment 1.9 deliverable changed from a letter report to a plan.
30	3.c	The words "and analysis" added to reflect language in 93-5.
31	1.b	Changed to reflect clear commitment to the 2-year goal by DOE/WHC.
31	1.e	Commitment to increase the number of sampling crews to the level required to meet the schedule made clear.
32	2.b	Function of the present sampling schedule clarified.

PAGE	COMMENT	NATURE OF CHANGE
32	4	Explanation of Figures 6 and 7 added.
38	1.c	Actions to improve push mode sampler noted.
40	3.d	Commitment 3.2 strengthened by adding a deliverable of a plan to resolve the findings of the review.
41	3.e	Language of Commitment 3.11 changed to make it clear that sampling trucks will be available for use on the due date.
43	3.f	Scope of study in Commitment 3.19 increased to cover administrative issues and plans to resolve them.
44	none	Changed Commitment 4.1 from January 1994 to February 1994 due to late delivery of stakeholder comments.
45	none	Changed Commitment 4.1 from January 1994 to February 1994 due to late delivery of stakeholder comments.
48	2.a	Language changed to improve consistency with Commitment 5.13.
50	3.g	Due date of Commitment 5.7 moved up from October 1994 to August 1994.
52	3.h	Added Commitment 5.14 to have the PAS-1 Casks ready to use by January 1995.
53-55		Changes in pagination to accommodate insertion of Commitment 5.14 on page 52.
App D, E	1.d	Old Appendix D removed to eliminate inconsistency regarding sampling capacity. Old Appendix E changed to reflect new schedules and becomes new Appendix D.

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EXECUTIVE SUMMARY

On July 19, 1993, the Defense Nuclear Facilities Safety Board (DNFSB) provided to the Secretary of Energy its Recommendation 93-5, which commented on the Hanford Tank Waste Characterization effort. Recommendation 93-5 was subsequently accepted by the Secretary of Energy on September 9, 1993. Recommendation 93-5 highlighted the need to accelerate the characterization of the Hanford Site tank wastes to expedite the resolution of identified tank safety issues, and to provide timely design data in support of activities addressing the disposal of the tank wastes. The Department of Energy (DOE) and its prime contractor, Westinghouse Hanford Company (WHC), are in full agreement with the content of Recommendation 93-5 and have prepared this Implementation Plan to document those actions that have been or will be taken to meet Recommendation 93-5.

The new Characterization Strategy embodied by this Plan acknowledges that waste distribution within a tank is the critical unknown with respect to successfully characterizing the tank for any Tank Waste Remediation Systems (TWRS) programmatic need. Therefore the new strategy is to: (a) complete historical characterization reports on each high-level waste (HLW) tank within a tank farm by using historical knowledge for information on waste layering, distribution, and general composition. These reports will be issued farm-by-farm for all farms in a given 200 Area quadrant; (b) sample each tank within a farm for a short list of key safety-related analytes (the safety screening process) and, for those tanks where screening indicates a safety concern does in fact exist, complete additional analyses and possibly additional sampling to provide the data needed to resolve the safety issue; (c) select specific tanks in the near-term to be sampled which are representative of the various Hanford waste distributions and utilize the data which results to enhance and expand the statistical models for determining the number of core samples needed from a tank; (d) revise as necessary the sampling and analytical needs, and capabilities, projections for FY 1995 and 1996 based on the predictive models, completed safety screening, safety resolution and other programmatic Data Quality Objectives (DQOs), and completed risk acceptance criteria; (e) utilize the Hanford Site HLW laboratories for operational, safety screening (45 day), and safety issue resolution analyses, and utilize (generally) offsite laboratories for process development laboratory work to support the TWRS disposal program needs; and, (f) support the disposal program sampling needs by both accumulating unused core sample materials for shipment to the offsite laboratories, and by expanded sampling of specific tanks ("bottling tanks") that the historical records indicate may contain limiting concentrations of key disposal analytes. The new strategy also addresses both the complementary and conflicting aspects of the Vapor and the Flammable gas characterization programs, and the impact of thermocouple tree installations being planned by the Ferrocyanide program.

The new strategy has been incorporated into the seven task initiatives of this Plan. The initiatives will, in their aggregate, substantially improve the Hanford Tank Wastes Characterization Program and will envelope the DNFSB's 93-5 Recommendation. Each task

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initiative, along with specific commitments, is discussed in the subsequent sections of this plan. A summary of the task initiatives, as well as the major commitments, are as follows:

1. Strengthen Technical Management.

Strengthening the technical management of the TWRS Characterization Program requires the development of decision making tools and techniques, as well as employing managers who can effectively utilize those tools and techniques in formulating and executing the Characterization Program. This task commits the Hanford Site to establishing a sound technical basis for the Characterization Program. Specifically, commitments for developing statistical tools are provided which will enable TWRS management to make informed decisions on the number of cores required per tank. Other commitments include (1) finalization of the limiting tank contents criteria (what chemicals control the design) for each of the TWRS program elements; (2) finalization of the detailed historical tank contents reviews and completion of the DQO planning processes for all TWRS elements; (3) completion of the statistical analysis of variability due to contents heterogeneity and sampling equipment/location limitations; and (4) completion of TWRS risk acceptance criteria for both tank safety issues and disposal system design issues.

This section clarifies the roles and responsibilities of the Characterization Program within DOE and WHC. Specifically, program scope is defined and includes proactive management of the Data Definition (i.e., DQO process); Data Collection (historical records, sampling, and analysis); Data Dissemination process; and technology development in support of sampling and analysis. Commitments are provided which will streamline the WHC-managed DQO planning processes, as well as align responsibility for the Characterization Program activities with the authority vested in the Characterization Program Manager. Commitments to enhance the staff of WHC and DOE commensurate with the above roles and responsibilities are made. Finally, commitments to explicitly define the roles and responsibilities within WHC of the Characterization Program Manager, the field sampling activities manager, the systems engineering manager, safety program manager, and the analytical laboratories manager are identified.

2. Accelerate Safety Related Characterization.

Even though the primary goal of this plan is to accelerate characterization activities in support of the TWRS mission, a specific near-term task has been initiated to collect necessary characterization data to (1) ensure all tanks with safety issues are properly identified, and (2) resolve specific tank waste safety issues. This task is driven by a growing acceptance that tank waste historical records alone are too uncertain to allow an acceptable determination of whether a specific tank is safe, conditionally safe, or unsafe, and whether it belongs on a Watch List. This task commits TWRS to accomplish a comprehensive hazardous vapors, flammable gas, organic, ferrocyanides, and high heat safety screening

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sampling and analysis activity on each of the 177 HLW tanks within 3 years of the date of acceptance of the Recommendation 93-5 (October 1996) and to complete safety-related sampling and analysis of all Watch List tanks within two years.

A commitment is also made to sample as many of the tanks as practical within a specific tank farm subject to meeting the two and three year commitments. This strategy will minimize the time associated with decontaminating the sampling equipment prior to over the road travel to another tank farm. The technique provides much greater assurance that all 177 tanks will be safety screened within the three year period specified within 93-5. Of the 177 waste tanks, only 128 tanks should need to be core sampled. The reduction in the number of tanks to be sampled is due to tanks which have already been sampled, tanks which are empty or close to empty, and tanks which contain only liquid. The latter two categories will be sampled with alternate sampling means. This reduced number of tanks requiring core sampling will contribute to completion of tank characterization within the time-frame specified in Recommendation 93-5.

This task commits the site to taking 2 or more full depth screening core samples from each tank sampled until the technical basis activity within Task 1 is completed. Finally, this task commits the site to the prompt development via the DQO process of an analytical package for screening core samples that utilize "macro-measures" (such as calorimetry for energetic reactions, Total Organic Carbon (TOC) for fuel content, and gross alpha for fissile material estimation) and minimal mixing of core components in order to determine within 45 days of sampling whether the core sample data indicates that a tank meets the criteria for the safe, conditionally safe, or unsafe category. Additional analytical work per safety-issue specific DQOs is required for tanks determined to be conditionally safe or unsafe.

3. Improve the Quality and Quantity of Sampling.

This task addresses changes necessary to achieve the accelerated schedule and improve recoveries. One push-mode and one rotary-mode sampling truck will begin operation in March 1994. Commitments are made for two more rotary-mode trucks to begin operation in FY 1995 and the addition of enough trained sampling crews to go to multiple shift operation for all four trucks. This schedule will allow an over 2 core/tank (average) sampling of all tanks in the 3-year period. Commitments are made to programs for flammable gas monitoring and vapor sampling that will allow timely access to flammable gas tanks and adequate monitoring for industrial hygiene purposes.

The issue of poor push-mode sample recoveries is addressed. Commitments are made to develop the means to determine core recoveries at the time of sampling and to directly monitor drill bit temperatures. The possibility that the number of cores required from some tanks may exceed the present capability to sample from existing risers is addressed by a commitment to immediately begin assessing the installation of additional risers. Details of an integrated sampling schedule including core sampling, auger sampling and grab sampling are presented.

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4. Streamline Tank Access.

This task identifies the initiatives that have been taken and completed with respect to gaining earlier access to waste tank contents for characterization activities. In addition, a commitment to resolve the issue of the timeliness of authorizing an intrusive activity into a tank with an identified safety issue is provided.

5. Improve the Quality and Quantity of Analyses.

This task addresses needed improvements to the planning, performance, and assessment of analytical services supporting the TWRS Characterization Program. Key areas needing to be improved are the quality of analyses, analytical capacity improvements to support projected sampling, and development of new or improved analytical techniques. The "macro-measures" techniques being proposed for the safety screening analysis of each tank core sample should substantially increase laboratory throughput due to the greatly reduced number of analytical determinations that are anticipated, and the simplified data reporting required.

A commitment is made to develop offsite HLW laboratory capability by October, 1994. Specifically, two PAS-1 shipping casks are being procured with amended licenses that will permit some liquid content to be shipped. TWRS has selected and is funding two offsite laboratories so that they are ready to receive samples in FY 1994 and FY 1995.

In the past, technical staff often questioned the reported results from the laboratories at the Hanford Site and/or found errors in their reports. Commitments are made to improve (1) the quality of the reported results; and (2) the internal and external assessments (enhanced quality assurance program). In addition, specific commitments are made to expand capacities, both by improvements to on site hot cells/equipment and by using off side laboratory facilities.

6. Improve Data Management

Improvements in the previous tasks will be of little value if customers to the Tank Characterization Program cannot access the information they need. The old Characterization Program had not established any controlled, accessible database for data users, nor had it created an atmosphere of sharing key information. Data flow was slow and manual (i.e., not computer generated), leading to input errors. Reports were not user friendly. Commitments are made to identify, develop, and make accessible data in electronic form to support customer needs. In addition, commitments are made to identify and work with customers to develop or improve data accessibility and to automate much of the data accumulation.

A near term commitment to evaluate the 12 existing validated data packages (similar to the recent tank 241-T-111 data package which indicated potential energetics issues) is also provided. The evaluation will determine whether (1) the packages are suitable for a safety screening effort, (2) and if so, is a safety issue indicated by the data, and (3) are the packages of value to the immediate needs of the TWRS disposal programs.

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2.0 NEAR-TERM INITIATIVES

An aggressive effort is underway to complete near-term initiatives which will demonstrate the commitment of Characterization Program in implementing this plan. A number of initiatives will be completed in the next 9 months. Most are presently in the planning base. Others will be added shortly via formal change control. They are as follows:

- Initiate construction of second and third rotary-mode core sampling trucks. (Commitment 3.1) November 1993 (initiated).
- Ensure characterization's functions and requirements are included in the detailed functional analysis report, to project functional level. (Commitment 1.13) January 1994.
- Streamline DQO Process. (Commitment 1.7) January 1994.
- Complete the safety screening DQO. (Commitment 2.2) January 1994.
- Review characterization procedures using DOE Conduct of Operations and Institute of Nuclear Power Operations good practices and revise as necessary. (Commitment 3.2) January 1994.
- DOE-RL to submit request for delegation of authority. (Commitment 4.2) January 1994.
- Initial online capability for LABCORE-1 System. (Commitment 6.3) January 1994.
- Demonstrate offsite access to the tank characterization database. (Commitment 6.4) January 1994.
- Issue plan to upgrade INEL to ready-to-serve mode for Hanford Site Analytical requirements. (Commitment 5.9) January 1994.
- Revise FY 1994 Sampling Schedule (Commitment 1.22) by February 1994.
- Issue Approved Broad-Based Environmental Assessment. (Commitment 4.1) February 1994.
- Complete qualification of first push-mode crew. (Commitment 3.3) February 1994.
- Issue TWRS Characterization QA Plan. (Commitment 1.8) February 1994.

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- Complete DQOs for all six safety issues. (Commitment 2.1) April 1994.
- Prepare customer needs analysis. (Commitment 6.1) April 1994.
- All WHC Characterization Program management staff to have completed systems engineering training. (Commitment 1.12) May 1994.
- Improve RL Oversight. (Commitment 1.3) May 1994.
- Plan for blind samples. (Commitment 1.9) May 1994.
- Issue Data Management Improvement Plan. (Commitment 6.2) May 1994.
- Develop and issue a field schedule for sampling that integrates all sampling activities for FY 1995 through FY 1996. (Commitment 1.11) June 1994.
- Complete characterization portion of the initial Systems Engineering analysis results. (Commitment 1.14) June 1994.
- Review procedures to identify changes to increase push-mode core sample recovery. (Commitment 3.17) June 1994.
- Complete historical tank content estimate reports for the northeast and southwest quadrants of tanks. (Commitment 1.17) June 1994.
- Engineering Evaluation of Alternatives for In Situ Moisture Monitoring. (Commitment 3.15) June 1994.
- Complete qualification of 2 additional field sampling crews. (Commitment 3.10) June 1994.
- Evaluate Laboratory Staff Training. (Commitment 5.6) June 1994.
- Complete Engineering Evaluation of Installing New Risers in SSTs. (Commitment 3.19) August 1994.
- Complete TWRS Risk Assessment Criteria. (Commitment 1.20) August 1994.
- Procure and receive two PAS-1 Transfer Casks. (Commitment 5.8) September 1994.
- Complete Historical Tank Layering Models. (Commitment 1.16) September 1994.

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formed TWRS strategic planning group which will implement the high-level systems engineering review, will provide needed technical strength to support the Characterization Program.

Deliverable: Implement new organization. Transmit to DOE the updated organizational charts.

Due Date: March 1994

COMMITMENT 1.3: Improve RL Oversight.

RL has developed plans and received approval from DOE-Headquarters (DOE-HQ) to implement changes to strengthen the management and coordination of the Characterization Program within RL. RL has formed the Characterization Office with a higher graded management position to attract senior experience; this office now reports directly to the TWRS Program Director. The RL TWRS Characterization Office is responsible for all TWRS sampling and analysis; historical characterization data compilation; data definition (DQOs) process to ensure thoroughness and adequate stakeholder participation; data dissemination; management and quality; and characterization technology development activities. The RL TWRS Characterization Office is responsible for ensuring that all needed laboratory support is available and that the data meets the DQOs established by the data users. DOE-HQ authorization of additional staff to support this new office has been requested. In the interim, four general services contractor staff are being added to provide the following services:

- Monitor DQO activities and support regulator interface.
- Data management systems specialist.
- Monitor the quality of all TWRS sampling and analysis activities.

Deliverable: Obtain DOE HQ approval for additional full-time equivalents.
Issue training/qualification plan for RL characterization staff.

Due Date: May 1994

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COMMITMENT 1.8: Issue TWRS Characterization QA Plan.

Issue QA Plan to cover all aspects of QA needs (sampling, development, equipment fabrication and laboratory).

Deliverable: WHC Document.

Due Date: February 1994

COMMITMENT 1.9: Plan for blind samples.

Develop plan to establish a periodic independent TWRS blind sample QA check of all laboratories supporting tank characterization. Plan will include where to get representative high-level waste blind samples and what to put into the blind samples.

Deliverable: Plan.

Due Date: May 1994

COMMITMENT 1.10: Issue quarterly progress reports by the 15th working day after the end of each quarter. Distribution of the quarterly progress reports shall include the DNFSB and DOE.

Deliverable: Letter Report.

Due Date: One month after quarter ends, starting April 1994.

**3.1.2 INTEGRATE THE CHARACTERIZATION AND SYSTEM
ENGINEERING EFFORT**

For the last several years, the Characterization Program had focused on taking two cores per tank, which were then analyzed according to RCRA protocol. This was to collect data to determine if SSTs should be left in place or retrieved. Recently, TWRS underwent a significant rebaselining, with the new baseline planning case being retrieval of all SSTs (see Appendix B). As part of that rebaselining, TWRS is using systems engineering techniques to develop and manage the TWRS Program and to improve integration and basis for activities and schedules. This process started with senior DOE-HQ, RL and WHC TWRS management attending a special orientation training on systems engineering techniques. TWRS is now in the process of training managers and key technical staff in the details of systems engineering, so that all members associated with planning activities will be using similar techniques and terminology. Classes are 2-day orientations (usually for managers)

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COMMITMENT 2.3: Complete sampling and analysis of all Watch List tanks per the DQOs established in commitments 2.1 and 2.2.

Deliverable: Letter documenting completion.

Due Date: October 1995

3.3 TASK 3: IMPROVE THE QUALITY AND QUANTITY OF SAMPLING

PURPOSE:

Substantially improve timeliness and completeness of sampling waste tank material.

DISCUSSION

Acceleration of sampling will be achieved by acquiring more sampling equipment; training more crews; cross-training crews to work on push-mode or rotary-mode sampling trucks, auger sampling, grab sampling and vapor sampling; working multiple shifts instead of one; phasing sampling to meet programmatic needs; using bounding tanks so that decisions are based on worst-case assumptions; and conducting sampling activities by tank farm to minimize down-time between sampling events.

The highest near-term needs for the characterization sampling effort are to (1) support the resolution of the tank safety issues including collecting data to close safety issues and to screen tanks to assure all issues are identified; and (2) perform sampling to support routine operations. In conjunction with this effort, other TWRS program element needs will be met if they are defined and needed to support near-term work.

The following sampling uncertainties exist:

- Types of samples needed
- Number of sample. per tank
- Appropriate time for sample collection
- Availability of necessary equipment and trained operations crews
- Adequate equipment performance
- Ability to streamline the process for obtaining tank access.

The DQO process is being used to determine (1) the types of samples needed (e.g., core, auger, grab); (2) the number of samples needed per tank; and (3) the appropriate time for sample collection. Until the DQOs have been completed, at least two full-depth sample will be collected from tanks that contain waste. Section 3.1.3 provides further discussion on the

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sampling strategy. A planning basis has been assumed for core sampling to ensure adequate sampling capacity is available. The anticipated core sampling rate can be derived by assuming that, allowing for down time, a core truck can take one core per shift per month. Beginning in March 1994, the push-mode trucks will be operated by 1 crew on a day shift, with a third crew dedicated to vapor, auger, and grab sampling. By June 1, 1994, additional crews will be trained to operate both trucks at two shifts per day, 5 days per week. WHC is now developing plans to provide additional sampling and support personnel to operate under 3 and 4 shift operations by October 1994, if such a schedule is required. Provisions will be made to train crews during off shifts, to double or triple the number of trainers, and to work with the craft unions to develop expedited procedures to obtain new personnel to support the sampling effort. The plan to acquire and train third and fourth shift operations sampling and support personnel will be completed by April 1994. Under the assumption of round the clock operation, each truck can produce a maximum of 48 cores per year. Allowing for start-up difficulties and staffing ramp-up, and a total of 4 sampling trucks it is estimated that the maximum TWRS core sampling capacity is as presented in Table 2. Auger and grab samples will augment this total.

Table 2. TWRS Core Sampling Capacity.

Sampling	FY 1994	FY 1995	FY 1996
Core sampling capacity (cores)	24	192	192

The sampling strategy selected is based on a farm-by-farm approach. Initially, farms will be selected which present the best opportunity to sample the most safety tanks. The farm by farm strategy has been selected because it represents the best chance to sample all of the tanks within 3 years. Core sampling (and other sampling as required by the DQOs) will be performed to support resolution of safety issues and to screen all tanks. All tanks will be sampled in accordance with the DQO developed for each tank or tank group. Tanks with 10 inches or less of waste will be auger sampled to complete the sampling of all tanks within the three year period.

Core sampling can be implemented only through risers. A study of alternatives will be accomplished by August 1994, in anticipation of a DQO product or earlier sampling results that indicate that a requirement exists for additional samples not achievable through existing risers. One alternative is adding additional access points in a tank. Other alternatives involve advanced sampling techniques/designs.

The integrated field sampling schedule in Appendix C details the sampling activities (including cores, vapor, liquid grab samples, and augers) and sampling equipment needs for FY 1994. The schedule was prepared subject to TWRS decisions on safety screening, and

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farm by farm sampling. The schedule may be revised by February 1994 if changes are required. Schedules of integrated sampling for FY 1995 to FY 1996 will be issued by June 30, 1994 (see Section 3.1 for details).

ADEQUATE SAMPLING EQUIPMENT AND STAFF

A new certification and training program for characterization operators was developed in late 1992. This program was developed using job task analysis and a structured process similar to those used in upgrading nuclear industry training programs. It requires 18 weeks of classroom training, reviewing practical facts, and examination and is designed to cross-train sampling crews in every sampling procedure needed to support the TWRS program. Each sampling crew shall be trained in sampling procedures to support rotary-mode, push-mode, auger, grab and vapor sampling. When sampling equipment fails, or there is loss time when equipment is being moved, etc., sampling personnel can be used to collect other types of samples required to support the TWRS program. In addition, at least one additional sampling crew will be trained to serve as a backup pool when personnel from regular crews are not available. WHC senior management is committed to ensuring that there are adequate personnel available for sampling and supporting specialties. Figures 5-7 present the near-term schedule and projected capacity per year per type of truck. In Figures 6 and 7, the first bar (P/Q) gives the capacity for 2 shift operations of rotary-core trucks; the second bar (X/Y/Z) for 2 shifts/5 days per week operations; and the third bar (A/B/C/D/E) for 3 shifts/7 days per week. The background bar shows the capacity required to take 2 cores per tank. Sampling crews will be dedicated to the TWRS Characterization Program. Additional crews for the support of Tank Farm Operations (e.g., installation of thermocouple trees) will be provided so that no conflicts arise in the support of other TWRS programs.

Training for the person in charge of each crew lasts approximately 24 weeks and includes fundamentals, tank farm systems, administrative requirements, practical factors, good sampling practices, laboratory interfaces, and examinations. Currently, five people are in training, four people have passed the course, and seven people are planned to start the next session.

In addition to obtaining and training crews, Waste Tank Operations has completed a Plant Implementation Team Performance upgrade approach, as outlined in Figure 8, to improve field work packages.

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PUSH-MODE SAMPLE RECOVERY

The push-mode core sampling system was placed in a stand-down earlier this year as a result of an inadequate sample recovery. Subsequently, engineering studies and the use of an outside panel of drilling, sampling, and characterization experts was assembled to bring industry expertise to the program. The bit and sampler design has been modified. The push-mode core sampling is scheduled to resume in March 1994 provided the DOE "hold" on the systems use is removed. If poor push-mode recovery should still exist, extra sampling shifts will be added to the rotary-mode sampling truck to compensate for the lost capability. Sampling procedures are also being reviewed with outside drilling experts, as well as contractor staff, to determine whether operational procedures can be modified to improve sampling recovery. This review will be completed by June 1994. If these fail, preliminary indications are that it would be faster to build a new rotary sampling truck than to modify the push-mode truck, due to the fixed contamination on the truck and the age of the equipment. If this becomes necessary all efforts to accelerate acquisitions of a new system will be made.

TIMELY DEPLOYMENT OF FIRST ROTARY-MODE SAMPLING TRUCK

The first rotary-mode core sampling truck is scheduled to be deployed after completion of the operational testing program (January 3, 1994) and the readiness review (March 31, 1994). The primary uncontrollable factor that may impact the schedule is the weather. This can hinder completion of the Operational Testing Program. This activity is being aggressively addressed. However, acceleration potential is limited if staff training on the system has not been completed. Should delays occur, field sampling schedules will be adjusted, additional crews trained, and extra shifts will be added to use all open dates to compensate for the delay.

**TIMELY COMPLETION OF SECOND AND THIRD ROTARY
MODE SAMPLING TRUCKS**

Two additional rotary-mode core sampling systems are scheduled to be deployed by the end of FY 1994. An area in the 337 High-Bay Building has been identified for assembly, and the first truck has been delivered there. Work began to prepare the truck for the new components in December 1993. WHC management is committed to increasing fiscal and personnel resources to meet the stated deliverable as necessary should complications arise in the delivery and assembly of components.

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COMMITMENT 3.2: Review characterization field procedures using DOE Conduct of Operations and Institute of Nuclear Power Operations good practices and revise as necessary.

Deliverable: Letter report documenting review and plan for resolution of findings.

Due Date: January 1994

COMMITMENT 3.3: Complete qualification of first push-mode crew.

Deliverable: Letter documenting numbers of staff and date qualified.

Due Date: February 1994

COMMITMENT 3.4: Re-deploy push-mode core sampling.

Deliverable: A letter will be transmitted to the Characterization Program acknowledging the deployment-ready status of the push-mode core sampling system.

Due Date: March 1994

COMMITMENT 3.5: Complete training and qualification requirements for sampling cognizant engineers.

Deliverable: Letter documenting that cognizant engineers are available for sampling activities.

Due Date: February 1994

COMMITMENT 3.6: Restore rotary-mode sampling capability at the Hanford Site.

The rotary-mode hard salt cake sampler and all required support equipment will be approved and released for characterization sampling operations.

Deliverable: Transmittal of a letter documenting the completion of all actions necessary to implement the safe core sampling of the hard salt cake wastes.

Due Date: March 1994

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COMMITMENT 3.7: Complete qualification of first rotary-mode crews and vapor/grab/auger sampling crew.

Deliverable: Letter documenting number of staff and date qualified.

Due Date: March 1994

COMMITMENT 3.9: Develop detailed plans for acquiring and training additional crews for sampling trucks.

Deliverable: Letter report.

Due Date: April 1994

Commitment 3.10: Complete qualification of two additional crews (one each for push and rotary trucks)

Deliverable: Letter documenting number of staff and date qualified.

Due Date: June 1994

COMMITMENT 3.11: Additional rotary-mode core sampling systems.

Fabricate and/or procure new core sampling trucks and support equipment as indicated by Characterization Program needs. Current planning entails developing one complete system, and procuring one additional base drill rig. A design specification document and drawings, based on the design of the rotary-mode core sampling system, will be prepared. Documentation to initiate fabrication of equipment will be issued. Equipment for the rotary-mode core sampling system includes a core sampling truck, nitrogen purge gas trailer, generator, support trailer, cask truck, and other ancillary equipment.

Deliverable: Transmittal of a letter documenting the operational availability of new rotary-mode core sampling system equipment.

Due Date: September 1994

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COMMITMENT 3.16: Direct Drill Bit Temperature Monitoring. This will complete field deployment and testing of a direct drill bit temperature monitoring device. Sandia National Laboratories Albuquerque Office has completed the preliminary design and is developing a full size prototype for field deployment.

Deliverable: Field deployment of devise.

Due Date: January 1995

COMMITMENT 3.17: Review procedures with outside drilling experts, as well as contractor staff to identify changes that may increase core sample recovery in the Push-mode.

Deliverable: Revised procedures.

Due Date: June 1994

COMMITMENT 3.18: Develop means for measuring complete sample recovery. Complete engineering study of alternatives, select method and complete design/fabrication/testing of technique.

Deliverable: Completed design and testing.

Due Date: January 1995

COMMITMENT 3.19: Complete engineering evaluation of installing new risers in SSTs including evaluation of administrative requirements and methods to eliminate potential roadblocks. The study will evaluate integrating need of other program elements (Tank upgrades and tank retrieval, for example) in determining optimum size of risers. The study will evaluate all styles of SSTs.

Deliverable: Document.

Due Date: August 1994

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3.4 TASK 4: STREAMLINE TANK ACCESS

PURPOSE

Improve access to tanks with USQs.

DISCUSSION

To access USQ tanks for sampling activities, an adequate safety and environmental basis must be developed. Presently, these documents must be reviewed and approved. This process for tank access will be streamlined and shortened without compromising the necessary rigor. An Interim Safety Basis (ISB) document has been developed and approved to better define the safety envelope for most tank farm activities a revised Safety Basis has been developed based on on-going and comprehensive safety and hazard analysis. The ISB consolidates existing hazard analyses, including work that was done since 1991 on Watch List tanks. The ISB also evaluates their adequacy and identifies any further analysis needed. These additional analyses will be completed by July 1994.

The ISB also contains facility descriptions, safety equipment lists, and Interim Operations Safety requirements. The DOE Richland accepted the ISB for use by WHC in November 1993. DOE orders and WHC procedures require that a USQ screen be performed for activities to ensure that they are within the authorization basis. If this screening process determines that the proposed activities are within the authorization basis, no further approval is needed. If these activities fall outside the authorization basis, then additional safety and environmental analysis and DOE authorization is required. Authority had been granted (via approval by DOE-HQ of a justification for continued operation) for the criticality and tank 241-C-103 USQs with respect to sampling. The ferrocyanide USQ is expected to be closed by January 1994, which will substantially reduce access issues for those tanks.

A broad based Environmental Assessment is being prepared to handle those activities anticipated for the SSTs and DSTs over the next several years, including tank sampling. This Environmental Assessment is scheduled to be approved by February 1994. Once the Environmental Assessment is approved, the access authorization time for most activities will be shortened from approximately 10 months to less than 1 month.

RL is in the process of establishing the basis upon which they will request a delegation of authority for approval of safety and environmental documentation needed for TWRS. DOE RL plans to submit a request for delegation of authority to DOE Headquarters in January 1994. This new process will be a tremendous benefit to the Characterization Program because most sampling activities will fall within the safety envelope as defined within the ISB. For these activities, only WHC approvals will be required for tank access.

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The integrated schedule status meetings and the monthly reviews will be used to identify potential problem areas so that management can focus their attention on corrective actions.

RESPONSIBILITY: The Waste Tank Safety Program is responsible for developing and submitting the broad-based Environmental Assessment. The RL TWRS Operations Office is responsible for obtaining the delegation of authority.

COMMITMENT 4.1: Issue approved broad-based Environmental Assessment.

Deliverable: Approved (by DOE-HQ) Environmental Assessment.

Due Date: February 1994

COMMITMENT 4.2: DOE-RL to submit a request for delegation of authority to DOE-HQ.

Deliverable: Letter from RL to HQ making the request.

Due Date: January 1994

COMMITMENT 4.3: Obtain delegation of authority for RL to approve safety and environmental documentation for TWRS.

Deliverable: Authorization letter from EM-1, DOE-HQ.

Due Date: April 1994

3.5 TASK 5: IMPROVE THE QUALITY AND QUANTITY OF ANALYSES

This task addresses the planning, performance, and assessment of analytical services to support the TWRS Characterization Program.

PURPOSE

The purpose of this task is to develop and implement the analytical strategies, systems, and controls to ensure that the following Characterization Program objectives are met.

- Analytical data must meet applicable program and regulatory requirements.

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TWRS usage. Both sites are working to resolve issues such as disposal of INEL secondary laboratory mixed waste. Issues which need to be resolved prior to using offsite laboratories include:

Transportation. Functional specifications have been developed for sample shipping containers, and available Type B casks are being identified. Type A containers will be identified for shipping lower activity TWRS samples.

Waste Handling. Receipt and analysis of high-level TWRS samples will result in mixed waste generation, and may require concurrence from the responsible operations office and regulatory authorities.

National Environmental Policy Act (NEPA). Environmental Assessments may be required for transporting and using offsite laboratories. If an Environmental Impact Statement is required, it may not be possible to bring off site labs online in time to support safety screening analyses.

A politically sensitive issue (receiving high-level waste samples outside of the State of Washington) could introduce the possibility that public sentiment could effectively rule out using a given facility. If this is not adequately addressed in existing NEPA documents, additional NEPA documentation addressing this issue may be required.

Successfully resolving these institutional issues is a prerequisite to developing and demonstrating specific capabilities at offsite laboratories. WHC and RL are working with laboratory managers and operations office personnel at the candidate sites to close these issues. Preparatory work at both INEL and LANL is presently funded. It is the expectation of DOE that both facilities will be able to receive and perform analyses on actual TWRS waste early in FY 1995. The focus at LANL will be on analytical process development.

Productivity improvements are also being pursued by the laboratories to enhance quality and capacity. These include improvements in laboratory operations and automated data collection (implementation, evaluation, reporting, and improved usage of analytical resources). See Section 3.6 for details.

A Hanford Site analytical services Quality Assurance Plan is being written to establish a common Quality Assurance/Quality Control basis for both Hanford Site Laboratories and offsite laboratories that provide analytical services to the Hanford Site. The plan will be based on DOE Order 5700.6C, and will be integrated into the TWRS Quality Assurance Project Plan requirements. A draft of this plan will be issued to the Characterization Program Manager in January 1994. It will provide detailed, prescriptive requirements in technical areas. It will also reflect requirements for validation and verification procedures to meet the TWRS DQOs. As an independent assessment, the TWRS program will be implementing a blind performance sample program which more nearly reflects the nature of the high-level nuclear wastes in the tanks.

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Due Date: March 1994

COMMITMENT 5.4: Cyanide Speciation - Complete Technology Transfer from PNL.

This activity provides for the development of new analytical methods and/or improvements to existing methods. Technical staff are responsible for investigating, developing, validating, documenting, and training personnel to formal procedures that detail analytical processes. These methods include, but are not limited to: cyanide speciation, hot cell gamma, and thermal conductivity.

Deliverable: Letter documenting completion.

Due Date: September 1994

COMMITMENT 5.5: Issue a report on results of the Sample Exchange Phase II.

Phase II of the Sample Exchange Program will involve the exchange of water leach, fusion preparation, and acid digest samples of SST core material from tanks 241-C-112 and B-201. The tank core material to be used in Phase II will be retrieved from the PNL Analytical Chemistry laboratory sample archive. The archived core material will be distributed to both participating laboratories for analysis. Sample preparation (water leach, fusion preparation, acid digest) from each tank will be distributed in quadruplicate to both laboratories.

Deliverable: Letter report.

Due Date: March 1994

COMMITMENT 5.6: Evaluate Laboratory Staff Training.

Perform an evaluation of the training of the laboratory's staff.

Deliverable: Letter.

Due Date: June 1994

COMMITMENT 5.7: Develop and Implement Enhanced Training Plan for laboratory staff.

Deliverable: Issue training schedule.

Due Date: August 1994

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COMMITMENT 5.13: Upgrade LANL Laboratory to ready-to-serve mode. Long lead item is NEPA (started January 1994).

Deliverable: Letter from LANL indicating ready-to-serve mode.

Due Date: February 1995

COMMITMENT 5.14: Two PAS-1 transfer casks will be ready for use.

Deliverable: Letter acknowledging that two PAS-1 transfer casks are ready for use.

Due Date: January 1995

3.6 TASK 6: IMPROVE DATA MANAGEMENT

PURPOSE

Substantially improve data accessibility to key users.

DISCUSSION

Without access to useable data in a timely manner, other improvements discussed earlier will have little value. Poor data management and slow flow of data is one of the major problems in the existing program.

Key near-term focus areas are:

- All Characterization Program data users (customers) must be identified.
- Customer needs must be determined and supported in a timely manner.
- Controlled, accessible databases must be established.
- Data reports must be readable and user friendly to key customers.

The ultimate goal of the Characterization Program is to provide the necessary analytical information to its data users (e.g., TWRS program elements, DOE, Washington State Department of Ecology). Easy access to this data in a form the users can understand is essential.

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To date the Characterization Program has been unsuccessful in satisfying the needs of its customers. Data once generated has been manually entered into various databases. Many of the databases are not controlled, nor are they all maintained by the Characterization Program. The data has been cumbersome for data users (large and bulky) and very difficult to comprehend. Often requests for data have been turned down or data is purposefully not shared. Plans are being developed to improve in these areas.

COMMITMENT 6.1: Prepare a Customer Needs Analysis.

A document will be developed identifying the customers of the Characterization Program and their individual characterization needs. This document will serve as a basis for evaluating the program's ability to meet its customers' needs.

Deliverable: Document.

Date Due: April 1994

COMMITMENT 6.2: Issue a Data Management Improvement Plan.

A plan will be developed identifying implementation plans for improving data accessibility, data control, and data readability. These plans will be the basis for determining work scope in the outyears.

Deliverable: Issue internal WHC document.

Date Due: May 1994

COMMITMENT 6.3: Initial Online Capability for an automated laboratory information management system (LABCORE-1).

The first phases of the anticipated system (LABCORE-1) will be installed and implemented at the 222-S Laboratory to support SST analyses.

This task will result in development and installation of a Laboratory Information System (LIMS) in all site laboratories. MULTI LIMS software will manage the data which pertains to sample analysis tracking and the management aspects of the laboratory operations, work assignments, sample status, final reporting, personnel training and equipment status. With

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this capability WHC can assign to specific sample data the analysis request, chain-of-custody records, and laboratory analysis raw data (as appropriate) to provide summary laboratory reports.

Deliverable: Initial online capability for LABCORE-1 System.

Due Date: January 1994

COMMITMENT 6.4: Demonstrate offsite access to the Tank Characterization database.

Demonstration of read-only offsite access by regulators to three tanks worth of characterization data in the Tank Characterization database.

Deliverable: Letter documenting completion.

Due Date: January 1994

COMMITMENT 6.5: Complete data loading of 20 tanks of data in to the Tank Characterization database.

Load 20 tanks worth of characterization data in the Tank Characterization database.

Deliverable: Letter documenting completion.

Due Date: September 1994

COMMITMENT 6.6: Evaluate 12 validated data reports for safety significance and determine if acceptable for safety screening and if data will be of use for TWRS disposal activities.

Deliverable: Letter report documenting results of the evaluation.

Due Date: January 1994

3.7 TASK 7: CHANGE CONTROL

The 93-5 Implementation Plan is a complex and long range plan. Flexibility is needed to address changes in commitments, actions, or completion dates where modifications are necessary due to additional information, project refinements, or changes in DOE's baseline assumptions.

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PURPOSE

To provide a change control process to handle implementation course corrections or process change.

DISCUSSION

The 93-5 Implementation Plan is based on certain assumptions. These assumptions were used to develop commitment dates. If outyear significant funding, staffing levels, or mission changes occur, the original date for commitments may require modification. Any anticipated significant changes in completion dates and department commitments will be promptly brought to the attention of the DNFSB prior to the passing of the completion date. These changes will be formally discussed in the quarterly progress reports, including appropriate corrective action, and (where appropriate) submitted to the DNFSB as a revision to the Implementation Plan.

RESPONSIBILITY

The Assistant Secretary for Environmental Restoration and Waste Management and the Technical Personnel Program Coordinator at DOE-HQ have the primary responsibility for Task 7.

COMMITMENT 7.1: Substantive changes in a Department commitment or commitment completion date will be formally submitted. The implementation plan will be revised and resubmitted as appropriate.

Deliverable: Revised Implementation Plan.

Due Date: As required

COMMITMENT 7.2: Changes to interim milestones and schedules will be formally addressed and assessed in the quarterly progress reports.

Deliverable: Discussion in quarterly report.

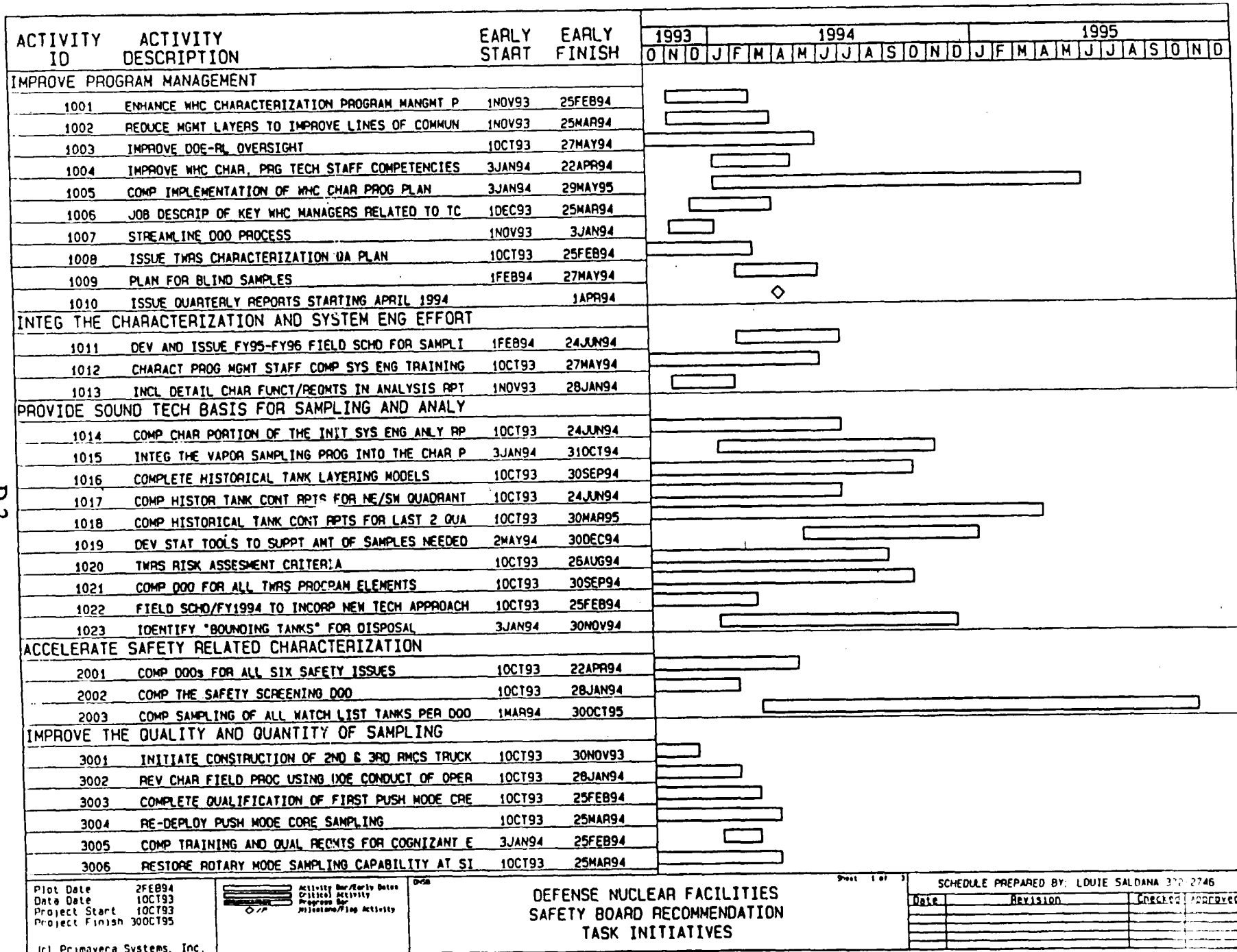
Due Date: As required in conjunction with quarterly report schedule.

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APPENDIX D

INTEGRATED SCHEDULE OF COMMITMENTS

D-2



Pilot Date	2FEB94
Start Date	10C193
Project Start	10C193
Project Finish	30OCT95

(c) Primavera Systems, Inc.

Activity Bar/Early Dates
Critical Activity
Proj. #s Bar
Milestone/Flag Activity

0450

DEFENSE NUCLEAR FACILITIES SAFETY BOARD RECOMMENDATION TASK INITIATIVES

Page 2 of 3

SCHEDULE PREPARED BY: LOUIE SALDANA 372-2746

Date	Revision	Checked	Approved

Distribution

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EH-6, M. Whitaker

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EH-222, S. Woodbury

EH-321, R. Lasky

EM-36:Lang:wj:3-7453:2/1/94:a(LANG)dnfsbrv1.935

EM-36 File # 2.13.2.4.16HLW Action # 691ES Committ # 9304324

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2/14/94

EM-1

GRUMBLY

1/94

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EM-30

Doc't Date: 02/23/94

E.S. No:

Due Date: 02/18/94

Est-123 Date: / /

To ES Date: / /

Comp Date: 02/23/94

Document Type: Action Coord & Cong Tracking Sys

**Subject: ACTION:SIGN LETTER TO THE DEFENSE NUCLEAR FACILITIES SAFETY BOARD
TRANSMITTING MODIFICATIONS TO THE 93-5 IMPLEMENTATION PLAN**

External Concurrences Required:

By:

From:

Referrals:	Referred From	Referred To	Orig Date	Due Date	For	Comp Date
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Status:  --- 02/23/94 ----- HARPERJ -----
RCVD IN EMCC, /S/GRUMBLY, DTD & DISP, YLW CPY SENT TO KELLY KIRSCH
(EM-30), CLOSED IN EM FILES, 2/23 (JMH)
--- 02/18/94 ----- HARPERJ -----
RCVD IN EMCC, PKG SENT TO FRONT OFFICE FOR RVW & SIGN, 2/18 (JMH)
--- 02/10/94 ----- KIRSCH -----
suspense filed
--- 02/10/94 ----- KIRSCH -----
COWAN CONCURRED FOR HIMSELF AND LYTLER -- PKG TO 36 TO HAND CARRY TO FORS
--- 02/04/94 ----- KIRSCH -----
RCVD IN EM-30 FOR SAPPINGTON/COWAN /C/
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